From: Hill, Brittain
To: alex.thrower@blueribboncommission.net
Cc: Kokajko, Lawrence ; Dorman, Dan ; Tinkler, Charles ; Brochman, Phil ; Santiago, Patricia
Sent: Wed Feb 23 05:32:50 2011
Subject: RE: Post-9/11 Steps Taken by NRC Regarding Pools

Alex –

In response to your email of 16 February, I have asked NRC staff to summarize any additional information on NRC activities since 9/11 to enhance the security of spent fuel pools. We've collated this input into a narrative, which represents an NRC staff summary of these activities. This summary relies on publically available information:

In the days and weeks following the 9/11 attacks, the NRC issued over 70 security and threat advisories to its licensees to enhance threat awareness and security. The February 2002 orders (referred to in the EPRI 2010 report) imposed specific requirements to enhance security at power reactors that provided additional protection for the pools. The new requirements included consideration of strategies to restore or maintain core cooling, containment, and spent fuel cooling under the circumstances associated with the loss of large areas of the plant due to explosion or fire.

Beginning in October 2001, NRC initiated a series of classified studies that involved extensive analysis of potential vulnerabilities and mitigation strategies at nuclear power plants, including spent fuel pools. To date, these analyses have included:

- Structural and thermal response of fuel to fully drained and partially drained pool conditions.

- Structural response of spent fuel pools.

- Spent fuel heat-up and coolability enhancement.

- Confirmatory testing of analytical methods for calculating thermal response of BWR and PWR fuel assemblies.

Insights from the initial studies informed the February 2002 orders. Ongoing insights from these studies led to the development of additional guidance regarding implementation of certain provisions of the orders. Additional guidance specifically related to spent fuel pools was issued to licensees in July 2004 and February 2005. The updated guidance was subsequently incorporated into the guidance supporting the 2009 Power Reactor Security Requirements final rule (74 FR 13926). Licensee implementation was incorporated into license conditions and implementation was verified through inspections.

Finally, the effectiveness of physical protection of spent fuel pools is demonstrated through force-on-force testing. This testing is conducted to evaluate the effectiveness of each licensee's protective strategy under realistic conditions, and involves simulated assaults on nuclear power plants in which the adversary force is attempting to cause reactor or spent fuel damage. The NRC substantially improved this process during 2002-2004. Since late 2004, and as required by Federal law since 2005, this testing is conducted at each operating power reactor once every three years. The testing frequently includes simulated attacks on spent fuel pools. The NRC reports to Congress every year on the results of these tests, including both public and non-public versions of these reports.

Please let me know if BRC would like additional information on this topic.

Best regards-

Britt

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